

**Apelaunothripini**  
(Insecta, Thysanoptera, Phlaeothripidae)  
from Borneo (Sabah, Malaysia)  
in the collection of the Geneva Museum

by

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With 11 figures

ABSTRACT

**Apelaunothripini (Insecta, Thysanoptera, Phlaeothripidae) from Borneo (Sabah, Malaysia) in the collection of the Geneva Museum.** — Three new species of *Apelaunothrips* Karny and a species of *Lizalothrips* Okajima are described. New locality records of *Apelaunothrips aokii* Okajima and *A. haradai* Okajima are given.

1. INTRODUCTION

The tribe Apelaunothripini presently includes 4 genera: *Apelaunothrips*, *Dexiothrips*, *Phylladothrips* (= *Paradexiothrips*, see OKAJIMA, 1988) and *Lizalothrips* (OKAJIMA, 1984). In contrast to the first three genera, *Lizalothrips* possesses narrow maxillary stylets. However, as in *Apelaunothrips*, the species of *Lizalothrips* have hook-shaped wing retaining setae on second and third abdominal tergites, and their pronotal anteroangular and midlateral setae are placed close together. These characters apparently indicate relationship to *Apelaunothrips* and justify the inclusion of *Lizalothrips* in the tribe. On the other hand, OKAJIMA (1984) suggested that Apelaunothripini was the sister group of Phlaeothripini, or eventually should be included within the Phlaeothripini. Recently OKA-

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JIMA (1988) indicated that the genus *Phylladothrips* could well be included in the Phlaeothripini. However, the tribal classification of the subfamily Phlaeothripinae remains unresolved.

Species of Apelaunothripini with moderately broad maxillary stylets can be distinguished from species of Docessissophothripini, another fungal spore feeding tribe with similar distinctive character, by having slender, distinctly eight-segmented antennae, and by lacking metathoracic sternopleural sutures. MOUND and PALMER (1983) believed that these two tribes evolved independently from their fungus feeding ancestors.

The knowledge of the order Thysanoptera in Borneo is still insufficient. In the tribe Apelaunothripini, only two species, *Apelaunothrips aokii* Okajima and *Apelaunothrips haradai* Okajima, are known from southern Borneo (Kalimantan, Indonesia) (OKAJIMA, 1987). The present authors had the opportunity to study a Thysanoptera collection from northern Borneo (Sabah, East Malaysia), which is preserved in the Natural History Museum, Geneva (Switzerland). The present paper deals with the tribe Apelaunothripini represented in this collection by six species, five *Apelaunothrips* and one *Lizalothrips* species, four of which are new to science.

The authors wish to express their hearty thanks to Drs B. Hauser, D. H. Burckhardt and I. Löbl, Natural History Museum, Geneva, for their kindness in giving the opportunities to examine their collections of thrips from Sabah.

The following abbreviations are used for the five pairs of prothoracic setae: *aa*, anteroangulars; *am*, anteromarginals; *ml*, midlaterals; *pa*, posteroangulars; *epim*, epimerals.

Most specimens in the text were collected by D. H. Burckhardt and I. Löbl.

Holotypes and most of paratypes are deposited in the Natural History Museum, Geneva, Switzerland, some of the other specimens in the Laboratory of Entomology, Tokyo University of Agriculture, Tokyo, Japan.

## 2. DESCRIPTIONS

### 2.1 *Apelaunothrips aokii* Okajima

*Apelaunothrips aokii* Okajima, 1987: 290-291.

This species was described based on two females from the southern part of Borneo (Kalimantan, Indonesia), and no additional material has been recorded.

Most of the specimens from Sabah listed below have longer body and darker colour than the type-specimens. Their legs are shaded with brown to dark brown, while those of the type-specimens from Kalimantan are yellow. Body size and colour appear to be variable in this species since there are a few intermediate specimens. In addition, specimens from Sabah usually have a pair of micro-pores on the pelta, which are absent in the type-specimens. At this time, it is not possible to determine if these differences are due to intraspecific variation between populations or not.

**Material examined.** SABAH (EAST MALAYSIA). Poring Hot Springs, 500 m, 1 ♀ on *Dipterocarpus*, 7.V.1987; Langanan Falls, 900-950 m, 1 ♀ in litter, 12.V.1987. Mt. Kinabalu: 1150 m, 1 ♂ on rotten wood with fungus, 24.V.1987; 1430 m, 2 ♀ ♀ on dead leaves, 22.V.1987; 1500 m, in grass litter, 2 ♀ ♀, 21.V.1987, 1 ♀, 30.IV.1987; 1540 m, 1 ♀ 1 ♂ in grass litter, 29.IV.1987; 1550 m, 1 ♀ in grass litter, 23.IV.1987. Crocker Range, 1550-1650 m, 1 ♀ 1 ♂ on rotten wood with dead leaves and mosses, 16.V.1987.

## 2.2 *Apelaunothrips haradai* Okajima (Fig. 7)

*Apelaunothrips haradai* Okajima, 1987: 291-293.

This species was also described based on two females (holotype and a non-paratypic female) from Kalimantan. Additional four females and four males are newly recorded here from Sabah. The male is very similar to the female in general structure, except for the following features: body somewhat smaller; forefemur enlarged (Fig. 7), with well developed, hook-shaped basal projection, and with a small hump situated just before this projection; inner surface of foretibia with median lobe-like projection.

**Material examined.** SABAH (EAST MALAYSIA). Poring Hot Springs: 500 m, 2 ♀♀ 2 ♂♂ on dry leaves, 13.V.1987; 550-600 m, 1 ♀ on dead bamboo leaves or bark, 9.V.1987. Sandakan Residency: Sepilok, 1 ♀ 2 ♂♂, 3.V.1982, B. Hauser.

## 2.3 *Apelaunothrips limbatus* sp. nov. (Figs 1 and 8)

**Female** (macroptera). Bicolourous yellow and brown; head yellow with cheeks brown; prothorax slightly shaded with pale brown, pterothorax with lateral margins somewhat brownish; abdomen tinged with pale brown; tube brown, distal half somewhat paler, with pale extreme base; antennal segments I, II, VII and VIII brown, segment III yellow, segments IV to VI brown each with yellow base; legs yellow, slightly shaded with pale brown; all major setae yellow.

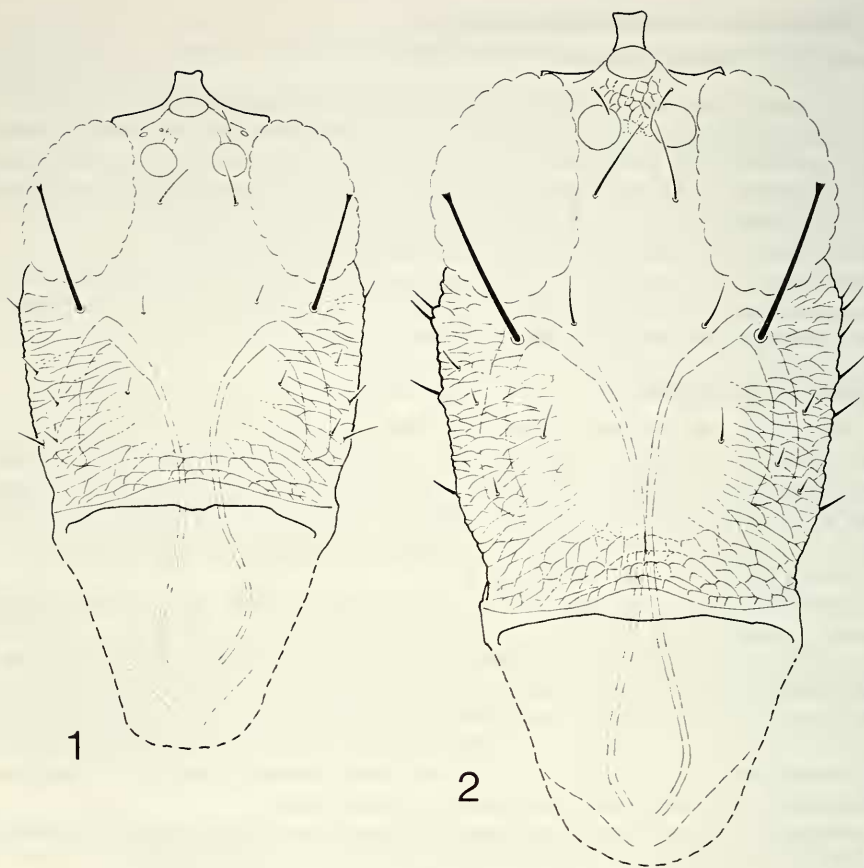
Head (Fig. 1) 1.15 times as long as broad, broadest across cheeks, dorsal surface sculptured laterally and posteriorly; cheeks weakly rounded; postocellar setae a little longer than diameter of posterior ocellus, postocular setae expanded apically, slightly shorter than eye. Ocelli 21-23 µm in diameter, posterior pair 22 µm apart from each other, about 20 µm apart from anterior one. Antennae about 2.4 times as long as head; segments III, IV and V subequal in length, segment VIII weakly constricted basally; segments III and IV with three (1+2) and four (2+2) sense-cones respectively. Maxillary stylets more or less apart from each other, weak maxillary bridge present.

Pronotum weakly sculptured posteriorly; all major setae expanded apically. Forewings each with 7-8 duplicated cilia; three subbasal wing setae, B<sub>1</sub> and B<sub>2</sub> expanded apically, B<sub>3</sub> weakly expanded or blunt. Forefemora not enlarged, foretarsi unarmed.

Pelta (Fig. 8) very weakly developed, almost hat-shaped, with weak reticulation, with a pair of micro-pores. B<sub>1</sub> setae on abdominal tergite IX weakly expanded apically, much shorter than tube, B<sub>2</sub> setae almost pointed apically, almost as long as or a little shorter than B<sub>1</sub>, an accessory setae between B<sub>1</sub> and B<sub>2</sub> well developed, almost as long as B<sub>2</sub>, but slender. Tube 0.65 times as long as head, 2.3 times as long as basal width; anal setae longer than tube.

*Measurements of holotype female in µm.* Total body length about 2400 (distended). Head length 234, width across eyes 199, maximum width across cheeks 204, width across basal collar 167; eye length 92-93, width 63-66. Pronotum median length 133, width 265; forewing length 1050. Pelta median length 92, width 143. Abdominal tergites median length (width) as follows: II 125 (336); IV 123 (308); VI 128 (281); VIII 118 (236); IX 86 (178). Tube length 152, basal width 66, apical width 41. Antennal segments I to VIII length (width) as follows: 55.5 (46); 58 (31.5); 87 (34); 89 (32); 85 (28); 71 (26); 56 (22); 43 (13).

Length of setae: postocellars 26-27, postoculars 82-85. Prothoracic *aa* 46-48, *am* 41-42, *ml* 52, *pa* 56-63, *epim*?. Forewing subbasals B<sub>1</sub> 50, B<sub>2</sub> 60-61, B<sub>3</sub> 71-77. B<sub>1</sub> on abdominal tergite IX 98-108, B<sub>2</sub> on IX 86-87, anals about 180.



FIGS 1-2.

Head of *Apelaunothrips* spp. (1) *A. limbatus*, female; (2) *A. spinalis*, female.

Male (macroptera). Colour and general structure almost as in female, except for smaller body and slender abdomen.

*Measurements of paratype male in  $\mu\text{m}$ .* Total body length 1820 (distended). Head length 199, maximum width across cheeks 173.5; eye length 81.5. Pronotum median length 117, width 208; forewing length 825. Pelta median length 71, width 102. Abdominal tergites median length (width) as follows: II 96 (244); IV 93 (229); VI 97 (195); VIII 101 (145); IX 87 (100). Tube length 128, basal width 53, apical width 32. Antennal segments I to VIII length (width) as follows: 47.5 (39); 48 (28); 74 (29.5); 76 (29); 77 (24); 63 (23); 50 (19); 37 (13).

Length of setae. Postocellars 23-24; postoculars 73-77. Prothoracic *aa* about 45, *am* 30-35, *ml* about 45, *pa* 50-52, *epim* 67-72. Forewing subbasals  $B_1$  44-46,  $B_2$  53-56,  $B_3$  65-66.  $B_1$  setae on abdominal tergite IX 102,  $B_2$  on IX 33-35; anals about 150.

**H o l o t y p e** ♀. SABAH (EAST MALAYSIA). Mt. Kinabalu, 1500 m, rotten wood with mosses and fungus, 25.IV.1987.

**P a r a t y p e**. Mt. Kinabalu, 1500 m, 1♂ on rotten wood with mosses and fungus, 25.IV.1987.

Non-paratypic specimen. Mt. Kinabalu, 1550-1650 m, 1♀, by beating, 24.IV.1987.

**Comments.** This new species is very similar in coloration to *A. marginalis* Okajima, 1984 and *A. rostratus* Okajima, 1984 from the Philippines. However, it can be easily distinguished from *marginalis* by the following features: Body paler, femora yellowish, almost concolorous with prothorax, abdominal segment II yellowish, concolorous with the remaining segments; dorsal surface of head not sculptured medially; antennal segment IV shorter than segment III; pronotum not sculptured anteriorly; anal setae longer than tube. From *rostratus* it is easily distinguishable by the shorter postocular setae which are distinctly shorter than eyes and the shorter mouth-cone which is not reaching the posterior margin of prothorax.

The non-paratypic female listed above is somewhat larger (total distended body length is more than 2600 µm) than holotype female with dorsal surface of its head generally sculptured.

#### 2.4 *Apelaunothrips spinalis* sp. nov. (Figs 2, 6 and 9)

**F e m a l e** (macroptera). Colour very similar to *A. limbatus*, described above, except: lateral margins of head more darker; antennal segments III to VIII paler, segments VII and VIII brownish yellow or yellowish brown, much paler than segments I and II; thorax and legs yellow, not tinged with brown; abdominal segment II brownish, darker than the remaining segments; forewings shaded with pale brown, but hyaline in basal and central part.

Head (Fig. 2) more than 1.3 times as long as broad, broadest across cheeks just behind eyes, dorsal surface with striate sculpture laterally and posteriorly, with fine polygonal reticulation in ocellar triangle; cheeks weakly rounded, weakly incut just behind eyes, distinctly constricted just before basal collar, with 4-6 spine-like cheek setae; postocular setae shorter than eye, weakly expanded apically; postocellar setae long, 1.6-2.0 times as long as the diameter of posterior ocellus. Eyes about 0.4 times as long as head; ocelli 24.0-26.5 µm in diameter, posterior ocelli 18.5 µm apart from each other, 18.5-19.0 µm apart from anterior one. Antennal segments 2.1-2.2 times as long as head; segment VIII weakly constricted basally; segments IV a little longer than segment III, subequal to segment V in length, segments III and IV with three (1+2) and four (2+2) sense-cones respectively. Maxillary stylets close together medially.

Pronotum weakly sculptured laterally and posteriorly; all major setae expanded apically. Forewings each with 9-10 duplicated cilia; three subbasal wing setae arranged in a straight line, expanded apically. Forefemora not enlarged, foretarsi unarmed.

Pelta (Fig. 9) weak, hat-shaped, with a pair of micro-pores. B<sub>1</sub> and B<sub>2</sub> setae on abdominal tergite IX weakly expanded apically, subequal in length, much shorter than tube, accessory setae situated between B<sub>1</sub> and B<sub>2</sub> well developed, but much shorter than B<sub>1</sub>. Tube almost straight sided, 0.57-0.59 times as long as head, 2.25-2.27 times as long as basal width. Anal setae longer than tube.

**Measurements of holotype female in µm.** Total body length about 3000 (distended). Head length 326.5, maximum width across cheeks 245, width across eyes 242, width across basal collar 194; eye length 134. Pronotum median length 163, width 312; forewing length

1280. Pelta median length 112, width 178. Abdominal tergites median length (width) as follows: II 153 (444); IV 164 (457); VI 165 (403); VIII 143 (280); IX 112 (204). Tube length 190, basal width 84, apical width 47. Antennal segments I to VIII length (width) as follows: 74 (54); 63 (36); 108 (39.5); 119 (34.5); 118 (28); 93 (26); 76 (23.5); 53 (13).

Length of setae. Postocellars 52-53; postoculars 105-112. Prothoracic *aa* about 60, *am* 43-45, *ml* about 60, *pa* 70-73, *epim* 85-88. Forewing subbasals B<sub>1</sub> 63-67, B<sub>2</sub> 72-82, B<sub>3</sub> 88-100. B<sub>1</sub> on abdominal tergite IX 147-153, B<sub>2</sub> on IX 152-154; anals 220-225.

**M a l e** (macroptera). Colour and general structure almost as in female except: body smaller, abdomen slender; forefemora (Fig. 6) enlarged, with a subbasal hump at inner surface; foretarsi each with a well developed tooth; prothorax well developed, with a strong median line, each side of anterior surface with a cone-shaped small projection which is directed forwards.

*Measurements of paratype male in μm.* Total body length about 2300 (distended). Head length 268, maximum width across cheeks 203; eye length 112. Pronotum median length 168, width 273; forewing length about 1030. Pelta median length 92, width 122. Abdominal tergites median length (width) as follows: II 122 (?); IV 118 (312); VI 127 (276); VIII 132 (198); IX 117 (132). Tube length 148, basal width 72, apical width 40.5. Antennal segments I to VIII length (width) as follows: 53 (48); 52 (31.5); 90 (36); 98 (31.5); 95 (26); 84 (24); 58 (20.5); 45 (13).

Length of setae. Postocellars 31-32; postoculars 112. Prothoracic *aa* 55-60, *am* 32-40, *ml* ?45, *pa* 56-58, *epim* 66-68. Forewing subbasals B<sub>1</sub> 50, B<sub>2</sub> 58-60, B<sub>3</sub> 66-68. B<sub>1</sub> on abdominal tergite IX 125-130, B<sub>2</sub> on IX about 40; anals 190-194.

**H o l o t y p e** ♀. SABAH (EAST MALAYSIA). Crocker Range, 1550-1650 m, on rotten wood with dead leaves and mosses, 16.V.1987.

**P a r a t y p e s**. 2 ♀ ♀ 3 ♂ ♂, collected with holotype.

Non-paratypic specimens. Crocker Range, 1600 m, 1 ♀ 1 ♂ in litter, 18.V.1987.

*Comments.* This new species is most similar to *A. marginalis* in general appearance, but it can be easily distinguished by the following features: head longer, at least 1.3 times as long as broad; dorsal surface of head not sculptured medially; postocellar setae longer, almost twice the length of the diameter of posterior ocellus.

The non-paratypic male and female listed above are somewhat different from the type-series. The male has neither forefemoral hump nor foretarsal tooth, although its body is not so small; and the female has somewhat darker coloration.

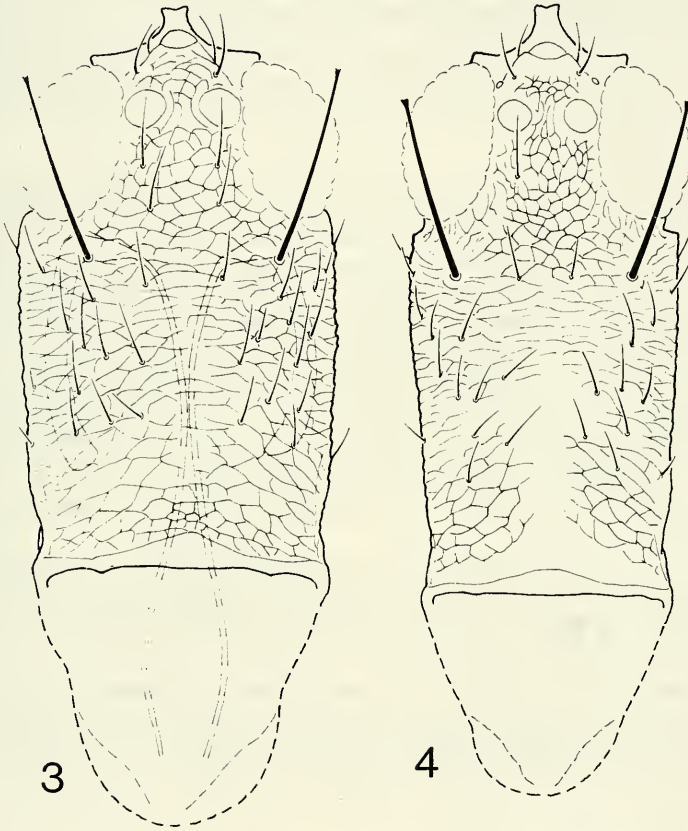
## 2.5 *Apelaunothrips zonatus* sp. nov. (Figs 3, 4 and 10)

**F e m a l e** (macroptera). Bicolourous yellow and brown; head, pro- and mesothorax brown; abdominal segments II to VIII brown, VIII somewhat paler than the remaining segments, I and IX yellowish; tube dark brown with pale extreme base; metathorax yellowish, with metascutum shaded with brown medially; all femora brown, all tibiae yellow; antennal segments I and II brown, concolorous with head, segments III to VIII yellow; all major setae yellow.

Head (Fig. 3) long, more than 1.5 times as long as broad, dorsal surface generally sculptured; cheeks almost straight, weakly incut just behind eyes; postocellar setae well developed, almost twice the length of the diameter of posterior ocellus; postocular setae expanded apically, longer than eye. Eyes relatively small, about 0.3 times as long as head. Ocelli well developed, 24-26 μm in diameter; posterior ones 21 μm apart from each other,

about 29  $\mu\text{m}$  apart from anterior one. Antenna 2.1-2.2 times as long as head; segment VI the longest, segment VIII constricted basally; segments III and IV each with three sense-cones (1+2). Maxillary stylets close together medially.

Pronotum weakly sculptured anteriorly and posteriorly; all major setae expanded apically. Metascutum with more than 10 acute setae. Forewings each with 10-12 duplicated cilia; three subbasal wing setae expanded apically. Forefemora not enlarged, foretarsi unarmed.



FIGS 3-4.

Head of *Apelaunothrips zonatus*. (3) female; (4) male (maxillary stylets omitted).

Pelta (Fig. 10) hat-shaped, with polygonal reticulation, micro-pores absent. Abdominal tergite II with a series of 10 or more setae on lateral portion; tergites III to VI each with 5-6 lateral setae.  $B_1$  and  $B_2$  setae on tergite IX pointed apically, longer than tube,  $B_1$  a little shorter than  $B_2$ . Tube about 0.7 times as long as head, about 2.3 times as long as basal width; anal setae shorter than tube.

*Measurements of holotype female in  $\mu\text{m}$ .* Total body length 2770 (distended). Head length 296, maximum width across cheeks 188, width across eyes 188; eye length 92. Pronotum median length 122, width 286; forewing length 1145. Pelta median length 107, width 163. Abdominal tergites median length (width) as follows: II 140 (423); IV 148 (449); VI 148 (428); VIII 132 (306); IX 92 (215). Tube length 204, basal width 89, apical width 48. Antennal segments I to VIII length (width) as follows: 61 (50); 61 (36.5); 92.5 (39); 92 (34); 113 (29); 84.5 (26); 68 (22); 53 (15).

Length of setae. Postocellars 43-45; postoculars 117-125. Prothoracic *aa* 76-82, *am* 66-75, *ml* 88-97, *pa* 92, *epim* 97-99. Forewing subbasals B<sub>1</sub> 93-95, B<sub>2</sub> 102-106, B<sub>3</sub> 118-120. B<sub>1</sub> on abdominal tergite IX 234, B<sub>2</sub> on IX 254; anals 158-168.

*Male* (macroptera). Colour almost as in female. Head (Fig. 4) very long in large male, 1.54-1.86 times as long as broad, widest across eyes; cheeks strongly incut just behind eyes; forefemora and foretibiae very similar to those of *A. haradai*; forewings each with 7-12 duplicated cilia.

*Measurements of paratype large/small males in  $\mu\text{m}$ .* Total body length 2500/2090 (distended). Head length 318/265, width across eyes 171/172; eye length 93/82. Pronotum median length 132/114, width 265/237; forewing length 1070/954. Pelta median length 97/86, width 163/127. Abdominal tergites median length (width) as follows: II 122/116 (363/296); IV 123/110 (377/317); VI 128/116 (326/280); VIII 125/111 (209/194); IX 116/204 (136/133). Tube length 189/163, basal width 77/76.5, apical width 43/40. Antennal segments I to VIII length (width) as follows: 66/63 (45/43); 66/61 (31/31.5); 90/? (36/?); 96.5/? (33/?); 115/? (29/?); 86/? (24/?); 69/? (21/?); 50/? (16/?).

Length of setae. Postocellars 40/44; postoculars 120/110. Prothoracic *aa* 77/61, *am* 72/58, *ml* 90/70, *pa* 97/82, *epim* 95/77. Forewing subbasals B<sub>1</sub> 82/71, B<sub>2</sub> 97/76, B<sub>3</sub> 102/92. B<sub>1</sub> on abdominal tergite IX 189/168, B<sub>2</sub> on IX 66/61; anals ?/?.

*Holotype* ♀. SABAH (EAST MALAYSIA). Kibongol Valley, 7 km north of Tambunan, 700 m, 20.V.1987.

*Paratypes*. SABAH (EAST MALAYSIA). Mt. Kinabalu: 1430 m, 2 ♀♀ on dead leaves, 22.V.1987; 1500 m, 1 ♀ 1 ♂ in litter, 30.IV.1987; 1540 m, in grass litter, 1 ♂ 28.IV.1987, 3 ♀♀ 29.V.1987; 1540 m, 2 ♀♀ 1 ♂ on dead leaves with mosses, 28.IV.1987; 1550-1650 m, 1 ♀, by beating, 24.IV.1987. Crocker Range, 1600 m, 1 ♀ in litter, 18.V.1987.

*Comments.* This new species is very closely related to *A. haradai*. It differs from the latter only in coloration. Antennal segments III to VIII of *zonatus* are yellow, in contrast to brown first and second segments. All antennal segments of *haradai* are brown. Moreover, general body colour is usually darker in *zonatus* than in *haradai*.

## 2.6 *Lizalothrips borneoensis* sp. nov. (Figs 5 and 11)

*Female* (macroptera). Head brown, darkest between eyes; thorax brownish yellow to yellowish brown; abdomen yellowish brown, but median portions of segments II to VI and entire segments VII to IX pale; tube brown, with pale base; antennal segments I and II brown, concolorous with head, segments III to VI white, with brown pedicels, with dark extreme apices and pale extreme bases, segments VII and VIII pale brown to white, getting paler gradually towards apex; all legs yellowish brown; forewings shaded with pale brown; major setae yellowish.

Head (Fig. 5) 1.25-1.30 times as long as broad (excluding preocular projection), widest across cheeks or eyes, preocular projection well developed, dorsal surface



sculptured laterally and posteriorly, almost smooth between eyes; cheeks rounded, strongly incut just behind eyes; postocular setae expanded apically, about one-third the length of eyes. Eyes large, strongly prolonged ventrally, about half the length of head on dorsal surface, about 0.7 times as long as head on ventral surface. Ocelli 19-21  $\mu\text{m}$  in diameter; posterior ones 18-19  $\mu\text{m}$  apart from each other, 29-30  $\mu\text{m}$  apart from anterior one. Antennae very slender, about 3.4 times as long as head; segment IV longer than segment III, subequal to segment V in length; segments III and IV with two (1+1) and three (1+2) sense-cones respectively.

Pronotum very weakly sculptured, major setae expanded apically. Forewings each with 6-7 duplicated cilia; three subbasal wing setae expanded apically,  $B_2$  and  $B_3$  far apart from each other.

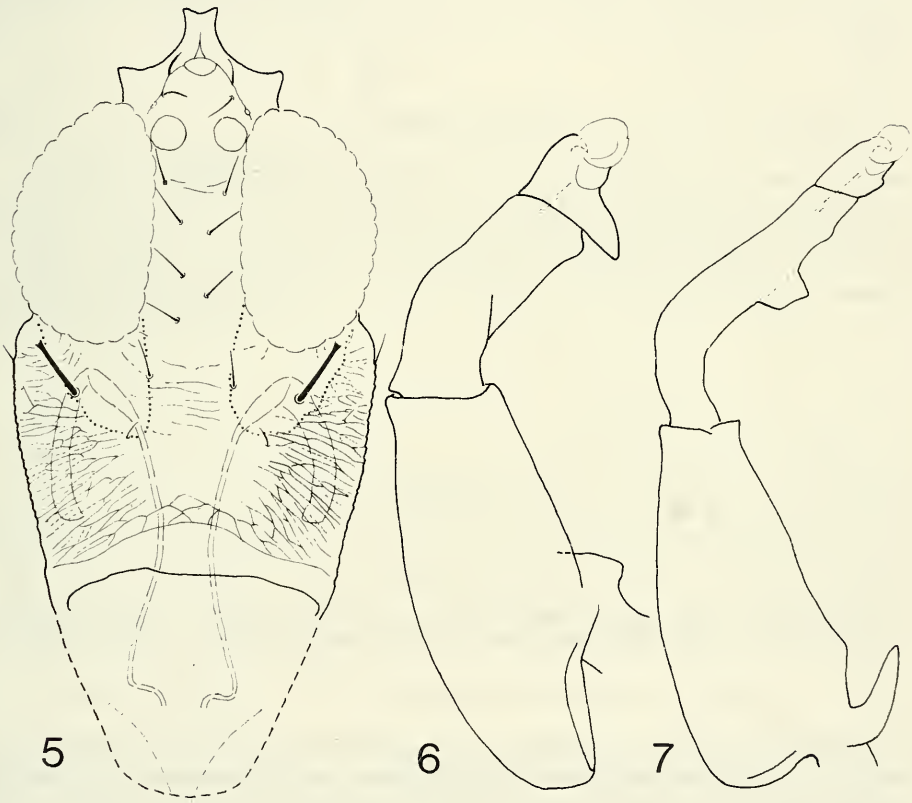


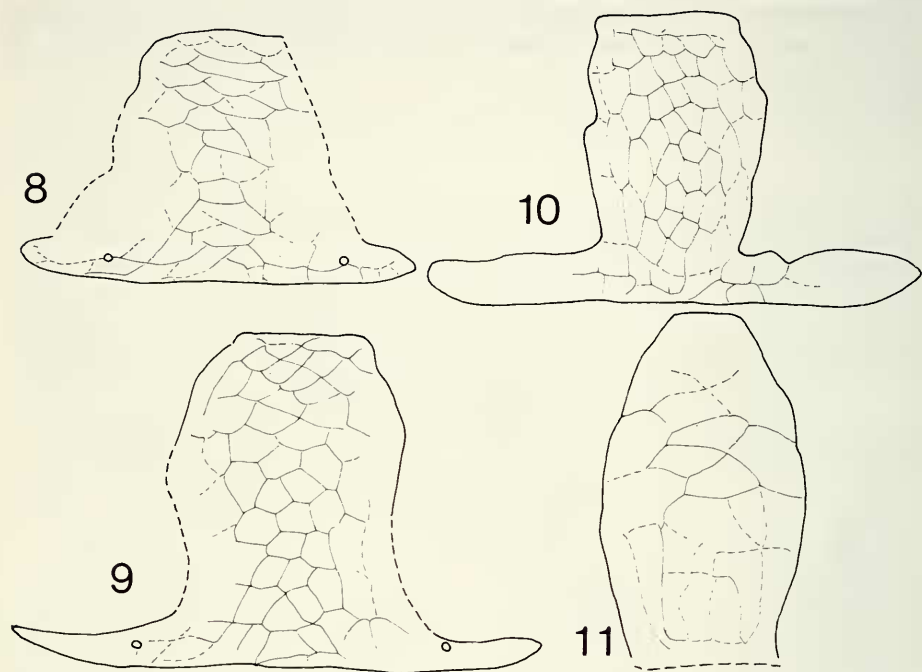
FIG. 5.

Head of *Lizalothrips borneoensis*, female.

FIGS 6-7.

Left foreleg of *Apelaunothrips* spp. (6) *A. spinalis*, male; (7) *A. zonatus*, male.

Pelta (Fig. 11) weakly developed, with weak reticulation, without micro-pores. Abdominal tergite II with a series of 9 or more setae on lateral portion, tergites III to VI each with a group of 6 or more setae on lateral portion.  $B_1$  and  $B_2$  setae on tergite IX expanded apically,  $B_1$  a little shorter than  $B_2$ , much shorter than tube. Tube 0.57-0.59 times as long as head, its length about twice basal width; anal setae much shorter than tube.



FIGS 8-11.

Pelta of *Apelaonothrips* and *Lizalothrips*. (8) *A. limbatus*, female; (9) *A. spinalis*, female; (10) *A. zonatus*, female; (11) *L. borneoensis*, female.

*Measurements of holotype female in  $\mu\text{m}$ .* Total body length 2580 (distended). Head length (excluding preocular projection) 273, width across eyes 214, width across cheeks 213; eye length 138. Pronotum median length 133, width 255; forewing length 1070. Pelta median length 103, width ?. Abdominal tergites median length (width) as follows: II 132 (368); IV 147 (372); VI 143 (332); VIII 122 (226); IX 102 (170). Tube length 158, basal width 76.5, apical width 43. Antennal segments I to VIII length (width) as follows: 61 (50); 58 (39); 163 (24); 177 (24); 183 (22); 125 (16); 108 (18); 67 (13).

Length of setae. Postocellars 29-31; postoculars 43-46. Prothoracic *aa* 46-49, *am* 37-40, *ml* 40-42, *pa* 33-35, *epim* 50-52. Forewing subbasals  $B_1$  40,  $B_2$  40-41,  $B_3$  76-82.  $B_1$  on abdominal tergite IX 102,  $B_2$  on IX 108-112; anals 112.

Male. Unknown.

Holotype ♀. SABAH (EAST MALAYSIA). Mt. Kinabalu, 1540 m, in grass litter, 29.IV.1987.

Paratypes. Mt. Kinabalu: 1550-1650 m, 1 ♀, by beating, 24-IV-1987; 1430 m, 2 ♀ ♀ on dead leaves, 22.V.1987.

*Comments.* This new species is very similar to *L. luzonensis* Okajima from the Philippines, but it can easily be distinguished from the latter by the following features: body larger; head more than 1.2 times as long as broad (excluding preocular projection); preocular projection well developed; dorsal surface of head not generally sculptured, smooth between eyes.

The present collection contains one more female of another species of *Lizalothrips* (Sepilok, 3.V.1982, B. Hauser). This specimen has shorter head and is very similar to *luzonensis* in general appearance. However, it is damaged, and could therefore not be compared in detail with *luzonensis*.

#### ZUSAMMENFASSUNG

Vier neue Apelaunothripini Arten (Insecta, Thysanoptera, Phlaeothripidae) aus Borneo (Sabah, East Malaysia) werden beschrieben, drei davon in der Gattung *Apelaunothrips* Karny, eine in der Gattung *Lizalothrips* Okajima. Im weiteren werden neue Funde von *Apelaunothrips aokii* Okajima und *A. haradai* Okajima gemeldet. Die Holotypen und der Grossteil des übrigen Materials wird in der Sammlung des Naturhistorischen Museums Genf (Schweiz) aufbewahrt.

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